REMARKS

[1-2] Claims 5-8 were rejected under § 112, second paragraph. The claims are amended in view of the Examiner's remarks. Withdrawal of the rejection is requested.

[3-4] Claims 1, 2, and 5-8 were rejected under § 103 over McIlwraith, Izumida, and Suzuki.

The specification at page 9, lines 3-13 explains the feature added to the claim 1 and its advantage, namely, that an extra six seconds are allowed for picking up the wafer, preventing production slow-down. The rejection of claim 1 is respectfully traversed:

(1) None of the references discloses attracting a work piece from a conveyor to a moving section that moves along with the conveyor.

McIlwraith uses Bernoulli pickups to lift lithographic printing plates off of a stack (¶[0019]). No mention of any conveying apparatus is seen.

Izumida discloses a conveyor for printed circuit boards, and is concerned with conveying the PC boards accurately for inserting components into the boards (col. 1, lines 14-17). However, Izumida does not disclose picking the boards up from the conveyor, or picking anything off of the boards. Thus, neither McIlwraith or Izumida teaches picking up work pieces from a moving conveyor.

Suzuki discloses picking up components from a flexible tape. The tape changes directions and is believed to lack a defined movement direction (see Fig. 15B); however, even supposing there were such a defined direction, still the features of claim 1 would not be met. The pickup 7, which is mounted on a rotary spool (Fig. 14), cannot possibly move parallel to the tape (except for one instant of tangency) because the tape motion is all within a vertical plane, while the pickup motion is within a vertical cylinder. Furthermore, it is clear from Suzuki's description that the pickup process takes place while the tape and the pickup are stationary in the X and Y directions, so there is no pickup during mutual motion.

That the tape and pickup are stationary is shown by Suzuki's claim 1, reciting "feeding [components] *sequentially* ... to a predetermined component sucking position ... lowering a nozzle [there] ... *stopping* the nozzle ..." The Applicant sees no statement anywhere in this reference would support continuous motion of the flexible tape.

Therefore, no combination (not admitted obvious) could reach the claimed subject matter.

(2) The proposed combination is not suggested.

(a) McIlwraith notes the use of Bernoulli pickup for semiconductor wafers in ¶¶ [0009]-[0014] and glass plates in ¶[0015], both of which have delicate surfaces that require contactless handling (¶[0001]). Fig. 1 shows a semiconductor wafer pickup.

Izumida's conveyor handles printed circuit boards. Unlike the semiconductor wafers and lithographic printing plates disclosed by McIlwraith, printed circuit boards do not have delicate surfaces and do not need contactless handling. With respect, the person of ordinary skill would already have known that PC boards are not delicate and also would have seen that Izumida does not teach any need for contactless handling.

Furthermore, Izumida is concerned with lateral movements of the PC boards and a Bernoulli pickup would not be suitable because it provides no lateral support. McIlwraith in ¶ [0018] notes that "sidewalls, extensions, [or] prongs" are used to prevent semiconductor wafers from sliding sideways off of a Bernoulli pickup head, like pucks on an air-hockey table.

For these reasons, McIlwraith and Suzuki would not have been combined by the person of ordinary skill.

(b) Suzuki discloses vacuum sucking, which is the exact opposite of the pressure blowing McIlwraith teaches, and is also something that McIlwraith teaches against in ¶ [0007]. Therefore, the person of ordinary skill would not have combined McIlwraith and Suzuki.

(c) Izumida teaches against any transfer apparatus separate from the conveyor (col. 1, lines 20-39), on the basis of its "size and complexity" and has an object of eliminating these (col. 2, lines 16-19). Suzuki, on the contrary, teaches a rotary transfer apparatus that is separate from a conveyor tape. Because of this contrary teaching, Izumida and Suzuki would not have been combined.

(d) With respect, the motivation proposed by the Examiner for combining the references ("to provide a supply device for a transfer device") is too general to be an actual motivation, presents no advantage to be gained from combining the references, and is unsupported by either citation or reasoned argument.

(e) The Examiner asserts that "to correlate movement of the conveyor and pickup" is taught by Suzuki and would have motivated combination, but such teaching (not admitted) would not have been applied to the other references individually by the person or ordinary skill, because McIlwraith and Izumida must first have been combined before both a conveyor and pickup would have been present. But, as is argued above, there would have been no reason to combine those two.

Furthermore, Suzuki does not disclose correlated movement, only correlated position. The Examiner has not cited to Suzuki for any disclosure of correlated movement. This basis for motivation is respectfully questioned.

(3) Like claim 1, independent claim 5 is patentable by the arguments above. No mutual motion, and no mutual motion during a predetermined time, is disclosed by any of the references. The same is true for independent claim 7. New claim 9 is patentable by its dependence and because none of the references discloses the motion perpendicular to a transportation direction. As was argued above, Suzuki is believed to lack such a direction.

[5] Claims 3 and 4 were rejected under § 103 over McIlwraith, Izumida, Suzuki, and the Examiner's comment. This rejection is respectfully traversed.

McIlwraith discloses pickup from a stack, and adding Suzuki's push-up function to McIlwraith would be impossible because no mechanism can be put inside a stack; with respect, there is no expectation of success (MPEP §§ 2143 and 2143.02)

Izumida, as noted above, does not disclose picking up anything and there is no reason to push up the PC boards from their conveyor.

With respect, the Examiner's assertion, i.e. that push-up would be activated once Izumida's board were detected, is not based on the references. With respect, this is only conjecture on the Examiner's part. There is no explanation of why activation prior to detection would obviate the need for pushing up.

Allowance is requested.

Respectfully submitted,

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